2020 Post-Enumeration Survey Update

Discussant Comments

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March 18, 2020

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United States® Census 2020

PES basics

P-sample is sample of block clusters; housing units are listed independently of the MAF; households are interviewed—after census field operations are complete—to determine the occupants and their characteristics on census day

E-sample consists of the census enumerations in the PES block clusters

Two samples are matched at the person level to provide a basis for estimating correct and erroneous enumerations in the E-sample (and thus the census)

Unmatched cases are followed up to resolve as many as possible

Dual-system estimation (based on capture/recapture methodology) is applied to the two samples to estimate the total population, used in calculating net error and omisions

Prior to 2010, estimates were produced within post-strata with, ideally, homogenous enumeration propensities; post-strata were replaced by logistic regression in 2010

Role of the PES interview

Personal interview collects information on the census day and interview day residence of persons in the sampled housing units (nonmovers and inmovers into these HUs)

Interview also collects information on persons who lived at the address on census day but who died or are out of scope for the PES universe (e.g., in group quarters)

Data are also collected on outmovers about whom the respondents have knowledge (these are possible E-sample cases)

Interview also collects information to establish where each person identified above should have been counted on census day and where else they could have been counted

Information on cycling between the sample address and alternate addresses is collected as well

Implications of delayed PES interviews

- Higher incidence of movers
  - Currently, 9.3 percent of the population moves in a year (2020 CPS ASEC); this has shown a steady decline from 20 percent in 1985
  - Quality of data collected on outmovers can be very low
- Increased recall error
  - Reduces matches between P-sample and E-sample
  - Requires follow-up to attempt resolution
  - Passage of time may make resolution more difficult, potentially boosting estimates of both omissions and erroneous enumerations
- Possibly more unit and item nonresponse, which complicates coverage estimation

Coverage and distance from census day
(from Mule 2012)

NRFU status	Census count (1,000s)	% Correct Enumerations	% Erroneous due to duplication	% Erroneous for other reasons	% Whole-person imputations
Non-NRFU	219,207	97.3	2.1	0.4	0.3
NRFU month					
April	1,717	93.1	3.7	0.6	2.6
May	59,057	90.2	4.0	0.8	5.0
June	14,766	84.6	4.8	0.9	9.6
July/August	211	74.8	6.8	1.2	17.3
Unknown	175	66.1	2.3	0.5	31.2

Adjusting for correlation bias

Lack of independence between the census and PES can bias the DSE results

Evidence of such bias has been observed in lower sex ratios among nonelderly adult Blacks in the DSE versus demographic analysis (DA)

The 2010 coverage measurement included a correlation bias adjustment based on relative sizes of the sex ratios obtained in preliminary DSE versus DA; ratio adjustments were applied to the DSE estimates of males

The 2020 coverage measurement will include the same type of adjustment

In 2010, DA found greater undercount of young children than did DSE, suggesting correlation bias in the DSE estimates of young children separate from race

In principle, an age-based adjustment could be developed to address this bias as well

With the efforts to improve the enumeration of young children in the 2020 Census, the bias may be smaller than in 2010; nevertheless, investigation of potential adjustment is warranted

Recommendations

Given that the delayed NRFU operations may have had an adverse effect on census data quality and that the delayed PES operations may result in overestimates of census error, the Bureau should explore the contribution of data collection month from both operations (and their interaction) to the logistic regression models of match probability and correct enumeration probability

The Bureau should investigate differences between DA and DSE estimates of young children as evidence of correlation bias and, if found, explore adjustment strategies

The Bureau's ability to match records outside of a limited search area—both in the full census and the PES—has improved greatly since 2000; as part of its 2020 PES documentation the Bureau should identify the universe for each matching operation and how this may have changed since 2010

The Bureau should describe how the new Disclosure Avoidance System will be applied to the (1) estimation and (2) publication of the components of census coverage for the nation, states, large counties, and large places